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AUTHOR Hall, Charles W.
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ABSTRACT

For the first 2 years of operation, the Instructional Television Services (ITS) at Mohave Community College, in Arizona, operated in a very traditional manner, utilizing two cameras and an operator at each site. To increase the efficiency of the television services, surveillance cameras were installed at sites and were operated from the district switchboard, eliminating the need for on site camera operators and saving the program over $400,000 in the ensuing 10 years. Currently, the ITS program runs approximately 6 days a week from 8:00 am to 10:00 pm. Other features of the reconfigured program include the following: (1) there are now four cameras at each site, covering the corner, back of room, overhead, and a desk camera showing instructor's examples; (2) the old permanently-on microphones have been replaced by push-to-activate mikes, reducing ambient noise; (3) wiring is in channels under the tables to discourage vandalism; (4) ceiling microphones have been installed to monitor classroom activities; (5) to facilitate communications between the district and sites, a courier service is in operation and the microwave system carries three telephone lines, two data lines, and one signal line to each site plus the audio and video signals for the ITS system; and (6) for security, tests and handouts are placed in special colored envelopes signed by faculty and all examinations are videotaped. The initial system was implemented in 1983-84 for $300,000, while this new phase cost $1.3 million. (KP)

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Interactive Televised Instruction: Factors To Consider.

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APRIL 24, 1995

GOOD AFTERNOON. THANK YOU FOR THE OPPORTUNITY TO TALK ABOUT INSTRUCTIONAL TELEVISION SERVICES (I.T.S.) AT MOHAVE COMMUNITY COLLEGE. AS BOB SAID, M.C.C. HAS BEEN IN THE BUSINESS FOR 11 YEARS, AND WE ARE CONTINUING TO TEST AND UPGRADE OURSELVES ALL THE TIME. FILLING IN FOR MIKE TACHA WAS A CHALLENGE, BECAUSE HE IS SO VERSED IN I.T.S.: ITS SUCCESS, THE CHANGES THAT HAVE BEEN MADE, AND THE OPPORTUNITIES STILL PRESENT FOR IMPROVEMENT. AS I VISITED WITH M.C.C. STAFF IN PREPARING THIS PRESENTATION, HOWEVER, I BECAME RE-EXCITED AND RE-COMMITTED TO I.T.S.

DURING THE FIRST TWO YEARS OF I.T.S., WE WERE VERY TRADITIONAL. WE HAD TWO CAMERAS AND AN OPERATOR AT EACH SITE. THERE WAS ONE FIXED CAMERA IN THE CORNER BEHIND THE INSTRUCTOR SHOWING THE AUDIENCE, AND ONE CAMERA IN THE BACK OF THE ROOM SHOWING THE INSTRUCTOR WHICH WAS OPERATED BY A WORK/STUDY STUDENT WHO HAD BEEN SPECIALLY TRAINED FOR THESE DUTIES. THUS, WE HAD FOUR OPERATORS: ONE IN EACH CLASSROOM AND AN OPERATOR AT THE DISTRICT

SWITCHBOARD. AS THE CLASSROOM OPERATORS WERE NOT NEEDED EXCEPT WHEN TRANSMITTING FOR A CLASS, THIS RESULTED IN IRREGULAR SCHEDULING WHICH MADE IT HARD TO KEEP GOOD OPERATORS; THEY OFTEN JUST DIDN'T SHOW UP. THERE WERE TIMES WHEN THE CAMPUS DEAN ENDED UP RUNNING THE CAMERA FOR A CLASS, JUST BECAUSE "THE SHOW MUST GO ON."

WE QUICKLY REALIZED HOW COSTLY THIS SYSTEM WAS IN TERMS OF HUMAN AND FISCAL RESOURCES AND INSTITUTED MAJOR CHANGES OVER THE NEXT 2-YEAR PERIOD. SURVEILLANCE CAMERAS WERE INSTALLED THAT COULD BE RUN FROM A SINGLE SOURCE--THE DISTRICT SWITCHBOARD. NOW ONLY ONE OPERATOR WAS REQUIRED TO RUN THE I.T.S. SYSTEM; NO OPERATORS WERE REQUIRED IN THE CLASSROOMS. THIS ELIMINATED THE CONCERN OF WHETHER OR NOT THE OPERATORS WOULD SHOW UP ON SCHEDULE, INCREASED THE EFFICIENCY OF THE PROGRAM, AND LOWERED THE PROGRAM'S COSTS, RESULTING IN A SAVINGS OF OVER $400,000 OVER THE ENSUING 10 YEARS.

QUALITY CONTROL-WISE, THE CAMPUS OPERATORS HAD PREVIOUSLY ALWAYS BEEN "ADJUSTING" THE AUDIO/VIDEO PART OF THE TRANSMISSION (NOT ALWAYS FOR THE BETTERMENT OF THE PROGRAM), WHICH USUALLY RESULTED IN SOMEONE FROM DISTRICT HAVING TO BE SENT TO THE CAMPUS CLASSROOMS TO READJUST THE DIALS. UNDER THE

NEW PROGRAM, AUDIO/VIDEO CONTROL IS HANDLED STRICTLY FROM THE DISTRICT SWITCHBOARD.

TODAY, NINE YEARS LATER, THE I.T.S. PROGRAM RUNS APPROXIMATELY SIX DAYS A WEEK FROM 8 A.M.-10 P.M., WITH ADDITIONAL EARLY MORNING MEETINGS SCHEDULED AS NEEDED. WE NOW HAVE FOUR CAMERAS AT EACH SITE:

- CORNER CAMERA--SHOWS AUDIENCE
- BACK OF ROOM CAMERA--SHOWS INSTRUCTOR
- PAD CAMERA--OVERHEAD SHOT OF INSTRUCTOR'S WORK
- VISUAL PRESENTER--ON DESK TO SHOW INSTRUCTOR'S WRITING/WORK

THE DISTRICT SWITCHBOARD OPERATOR OPERATES THESE CAMERAS FOR FOUR DIFFERENT SITES, A TOTAL OF 16 CAMERAS. THIS CAPACITY WAS BUILT UP TO BY ADDING A CAMERA TO EACH SITE ONE-AT-A-TIME. ADDITIONALLY, SEVERAL LARGE MEETING ROOMS WERE ALSO WIRED AND ARE READY FOR BROADCAST AS WELL.

IN ADDITION TO RE-CONFIGURING THE VIDEO SYSTEM, WE HAVE REBUILT THE AUDIO SYSTEM AS WELL:

- WE HAVE REPLACED THE GOOSENECK MICROPHONES. THE DOWN PAYMENT WASN'T MUCH, BUT THE UPKEEP (REPLACEMENT) WAS COSTLY.--ALWAYS OPEN.
- WE NOW HAVE MICE MIKES--PUSH TO ACTIVATE.

- THE MICE ARE NOT OPEN MIKES--KEEPS SYSTEM QUIETER.
- WE HAVE PUT WIRING IN CHANNELS UNDER THE TABLES TO DISCOURAGE VANDALISM. BEFORE, ONE STUDENT COULD SHUT DOWN A WHOLE AREA BY PULLING CORDS.
- ALL SOUND IS CONTROLLED FROM THE DISTRICT SWITCHBOARD.
- CEILING MICROPHONES HAVE BEEN INSTALLED TO MONITOR CLASSROOM ACTIVITIES. THEY CAN BE TURNED OFF/ON AT THE WILL OF THE DISTRICT SWITCHBOARD OPERATOR AND CLASSROOM INSTRUCTOR.

TO FACILITATE COMMUNICATIONS BETWEEN THE DISTRICT SWITCHBOARD AND I.T.S. CLASSROOM SITES:

- THE DISTRICT RUNS A COURIER SERVICE TO ALL THREE CAMPUSES DAILY. THEREFORE, I.T.S. MATERIALS CAN HAVE SAME DAY TO 24-HOUR SERVICE. FOR TESTS, HANDOUTS, ETC.
- THE MICROWAVE SYSTEM CARRIES 3 TELEPHONE LINES, 2 DATA LINES, AND 1 SIGNAL LINE TO EACH SITE, PLUS THE AUDIO AND VIDEO SIGNALS FOR THE I.T.S. SYSTEM.
- REGARDING THE MOVEMENT OF WRITTEN MATERIALS:
  1. TESTS AND HANDOUTS ARE PLACED IN SPECIAL COLORED ENVELOPES (GREEN/WHITE AND PINK/WHITE).

2. EXAMS--FACULTY SIGN ACROSS THE ENVELOPE FLAP FOR SECURITY. (FACULTY THOUGHT ITS MAIL WAS BETTER THAN THE COLLEGE'S AND WANTED TO USE DIFFERENT ENVELOPES.)
3. THE CAMPUS LIBRARIANS SERVE AS THE CONTACT FOR EACH SITE. THEY PUT TESTS, HANDOUT MATERIALS, ETC. IN A LOCK BOX AT EACH SITE, THEN PICK THEM UP AFTER CLASS AND PUT THEM BACK IN THE MAIL TO THE CLASS INSTRUCTOR OR DISTRICT.
4. ELECTRIC LOCK MAILBOXES ARE CONTROLLED BY THE DISTRICT SWITCHBOARD OPERATOR. WHEN IT IS TIME FOR A TEST TO BE GIVEN, THE OPERATOR PUSHES A BUTTON AND THE REMOTE LOCK-BOX DOOR OPENS; CLASS MEMBERS TAKE OUT THE TESTS AND PUT THEM BACK INTO THE LOCK-BOX WHEN FINISHED.
5. FAXES ARE USED TO BACK UP THE MAIL SYSTEM, IF TESTS DO NOT ARRIVE IN TIME. ALSO, FAXING ALLOWS LAST MINUTE MATERIALS TO BE SENT TO SITES FOR THAT DAY'S CLASSES.

SECURITY WAS A SURPRISE CONCERN TO US IN THE EARLY DAYS. IT WAS FIRST BROUGHT TO OUR ATTENTION WHEN A CAMERA OPERATOR SAW A STUDENT CHEATING ON A TEST. SINCE THE OPERATOR WAS NOT THE FACULTY MEMBER, HE DIDN'T FEEL HE COULD CALL THE STUDENT ON THE INCIDENT. TODAY, ALL TESTS ARE TAPED, AND, IF ANY INCIDENTS OCCUR, THEY ARE USED AS PROOF. ALL STUDENTS ARE TOLD THAT THE

TESTS ARE TAPED AND WHAT HAPPENS IF THEY ARE CAUGHT CHEATING.

WE ARE CONTINUING TO REDUCE OUR OPERATING COSTS. LIKE ALMOST ANYTHING, PURCHASING IT MAY BE INEXPENSIVE COMPARED TO THE UPKEEP:

- WE HAVE REDUCED OPERATORS FROM 5 TO 1.
- WE HAVE A SERVICE CONTRACT WITH A LOCAL ELECTRONICS FIRM.
- WE BUY AND STOCKPILE REPLACEMENT PARTS IN ORDER TO HAVE AS LITTLE DOWN-TIME AS POSSIBLE.
- WE SHARE OUR STOCKPILE WITH YAVAPAI COLLEGE IN PRESCOTT, ARIZONA; EACH BUYING PIECES AND SHARING SUPPLIES UNTIL THEY ARE RESTOCKED, ESPECIALLY HARD-TO-GET PARTS THAT RESULT IN DAYS OF DOWN-TIME.
- WE HAVE GONE TO SURVEILLANCE TECHNOLOGY--ALL CAMERAS AND PADS ARE CONTROLLED FROM ONE SITE--UP TO 65 MILES AWAY FOR TWO SITES, AND OVER THE GRAND CANYON IN THE OTHER DIRECTION. THE CAMERAS ARE NOT "ROLLS ROYCES"; BUT WITH THE NEW CHIPS, THEY ARE THOUGHT TO LAST FOREVER.
- WE CONTINUE TO UPGRADE MONITORS. WE NOW HAVE 30" MONITORS.
- IN 1983-84, THE I.T.S. SYSTEM WAS BUILT BY THE COLLEGE FOR APPROXIMATELY $300,000. IN THE NEXT PHASE, WE JUMPED THE GRAND CANYON, WENT THROUGH TWO

WILDERNESS AREAS, AND SETTLED ON A MOUNTAIN TOP THAT DID NOT EVEN HAVE A ROAD; AND THAT PROJECT COST $1.3 MILLION.

IN SUMMARY, THE PHILOSOPHY OF THE MOHAVE COMMUNITY COLLEGE I.T.S. SYSTEM IS "GIVING THE FACULTY CLASSROOM MANAGEMENT". IN OTHER WORDS, FACULTY DON'T HAVE TO WORRY ABOUT RUNNING FILMS, RECORDS, OVERHEADS, OR TURNING TO WRITE ON THE BOARD. ALL THIS AND MORE IS COVERED THROUGH THE I.T.S. SYSTEM. WE WANT THE FACULTY TO CONCENTRATE ON TEACHING AND WORKING WITH THEIR STUDENTS.

ADDITIONALLY, WE TRY TO USE TRANSPARENT TECHNOLOGY. YOU DON'T SEE BIG MICROPHONES ON THE TABLE (JUST LITTLE MIKES). YOU DON'T SEE WIRES ON THE TABLES, FLOORS, OR AROUND THE CEILING; THE CAMERAS ARE MOUNTED IN THE CEILING AND GIVE NO NOISE, AND YOU SEE NO WIRES. THERE IS NO ONE IN THE CLASSROOM TO REMIND YOU OF THE TECHNOLOGY; THERE ARE JUST THE INSTRUCTORS, UNOBTRUSIVE CAMERAS/MONITORS AT THE FRONT AND BACK OF THE ROOMS, AND SMALL MIKES ON THE TABLES.

OUR SYSTEM HAS CHANGED SIGNIFICANTLY AND WILL CONTINUE TO CHANGE, JUST AS YOUR SYSTEMS HAVE CHANGED AND WILL CONTINUE TO CHANGE AS YOU PROGRESS. I WISH YOU GOOD LUCK AS YOU CONTINUE TO DEVELOP YOUR

SYSTEMS. IT IS AN EXCITING RIDE AND WELL WORTH THE PRICE OF ADMISSION.

CWH:LGW